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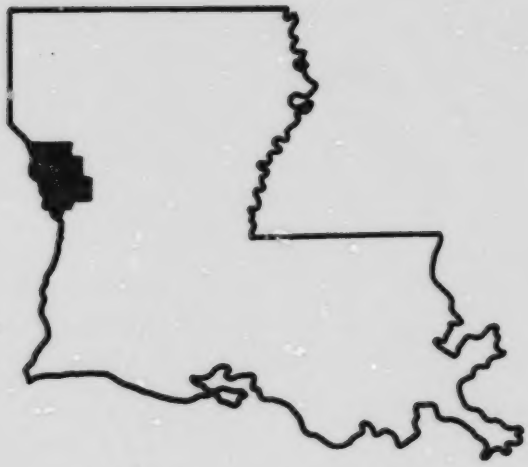
FLOOD INSURANCE STUDY

TOWN OF MANY, LOUISIANA
SABINE PARISH



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JUNE 15, 1988

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Federal Emergency Management Agency

COMMUNITY NUMBER - 220158

ORIGINAL

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance study purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY
TOWN OF MANY, SABINE PARISH, LOUISIANA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Many, Sabine Parish, Louisiana, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the U. S. Geological Survey (USGS) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-85-E-1823. This work was completed in December 1985.

1.3 Coordination

On January 29, 1985, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives from FEMA, the town, and the USGS (the study contractor) to determine the streams to be studied by detailed methods.

On July 7, 1987, a final CCO meeting was held with representatives from FEMA, the town, and the study contractor to review the results of the study.

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2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Many, Sabine Parish, Louisiana. The area of study is shown on the Vicinity Map (Figure 1).

San Jose Creek Tributary was studied by detailed methods from the Illinois Central Gulf Railroad crossing downstream of the downstream corporate limits to a point approximately 1,000 feet upstream of Springbrook Avenue. Flood insurance information in this study applies only to the areas within the corporate limits of Many. Special flood hazard areas are shown outside of Many for planning purposes only. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through December 1990.

The following streams were studied by approximate methods: various unnamed tributaries to San Jose Creek Tributary, San Jose Creek, and Phillips Creek. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Town of Many.

2.2 Community Description

The Town of Many is located in Sabine Parish in east-central Louisiana. It is completely surrounded by the unincorporated areas of Sabine Parish.

2.3 Principal Flood Problems

According to local officials, the major flood problem within the Town of Many is from overflow of San Jose Creek Tributary.

2.4 Flood Protection Measures

There were no flood protection measures in the town at the time of this study.

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. A flood event of a magnitude which is expected to be equaled or exceeded once on the average during any 100-year period (recurrence interval) has been selected as having special significance for floodplain management and for flood insurance rates. This event, commonly termed the 100-year flood, has a 1 percent chance of

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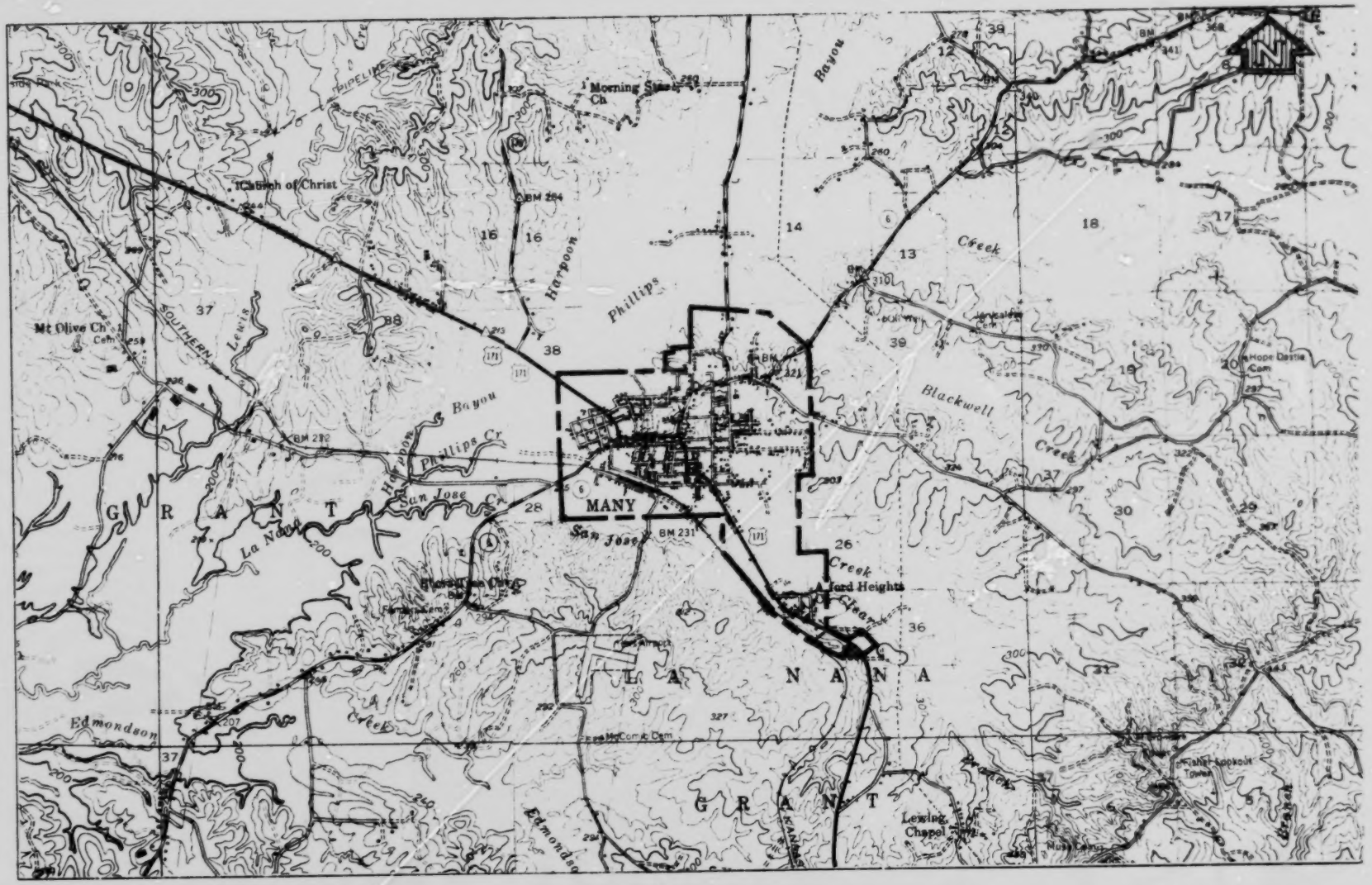

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MANY, LA

(SABINE PARISH)

APPROXIMATE SCALE

1 0 1 2 3 MILES

VICINITY MAP

being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding source studied in detail affecting the community.

Hydrologic analyses were carried out to establish the peak discharge-frequency relationship for the 100-year flood for San Jose Creek Tributary. F. N. Lee developed equations in Technical Report No. 36 to estimate the 5-, 10-, 25-, 50-, and 100-year discharge for natural, unaltered streams in Louisiana (Reference 1). The equation given in that report for estimating the 100-year discharge was used for San Jose Creek Tributary. No adjustment was made for urbanization based on field inspection of the drainage basin.

No stream-flow record is available on San Jose Creek Tributary. Peak flow data, however, were collected for San Jose Creek at U. S. Route 171 from March 1964 to September 1968. The highest flood to occur at this site was 236.10 feet on April 8, 1968. No discharge information is available for this flood. The following floods occurred on San Jose Creek from 1964 to 1968 at U. S. Route 171: April 26, 1964; March 31, 1965; February 9, 1966; June 1, 1967; and April 8, 1968. These floods had stages of 234.03, 232.16, 234.66, 229.84, and 236.10 feet, respectively.

A summary of the drainage area-peak discharge relationships for San Jose Creek Tributary is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
SAN JOSE CREEK TRIBUTARY		
At Illinois Central Gulf Railroad	0.66	650
At Georgia Avenue	0.41	403
At cross section G	0.22	214

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Eight natural valley cross sections for the backwater analysis for San Jose Creek Tributary were obtained by transit-stadia survey. In addition to the natural valley cross sections, bridge or culvert geometry and road grade elevations were obtained so their effect on the 100-year profile could be determined. In addition to the field surveys, 12 synthesized cross sections were used. The synthesized sections were generally based on the preceding natural valley cross sections and adjusted for slope and width where deemed necessary.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence interval were computed using USGS WSPRO (water-surface profile) step-backwater program (Reference 2). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence interval. Starting water-surface elevations for San Jose Creek Tributary were estimated from high-water information on San Jose Creek at the Illinois Central Gulf Railroad crossing (Reference 3).

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment based on field observations of the floodplain areas. The channel "n" value for San Jose Creek Tributary was 0.040, and the overbank "n" value was 0.160.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries to assist communities in developing floodplain management measures.

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4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For the stream studied in detail, the 100-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 10 feet (Reference 4).

For the streams studied by approximate methods, the 100-year flood boundary was delineated using the Flood Hazard Boundary Map for the Town of Many (Reference 5).

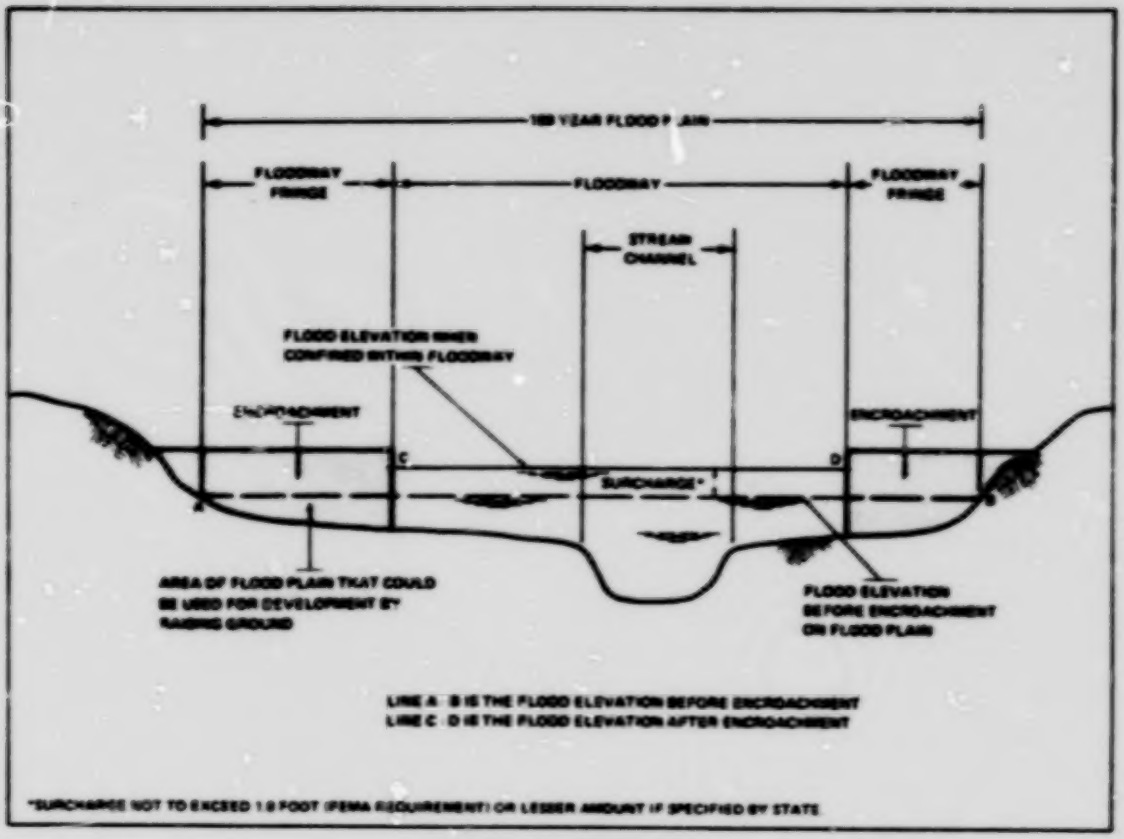
The 100-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capatown, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

No floodways were calculated as part of this study.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION RISES CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 2

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

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Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain. The locations of selected cross sections used in the hydraulic analyses are shown where applicable.

7.0 OTHER STUDIES

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the Town of Many (Reference 5).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Federal Regional Center, 800 North Loop 288, Denton, Texas 76201.

9.0 BIBLIOGRAPHY AND REFERENCES

1. Louisiana Department of Transportation and Development, Office of Highways, Water Resources Technical Report No. 36, Magnitude and Frequency of Floods in Louisiana, Fourth Edition by F. N. Lee, 1985.

2. U. S. Department of the Interior, Geological Survey, in cooperation with the Federal Highway Administration, Office of Research and Development, WSPRO, Bridge Waterways Analysis Model, Research Report WSPRO by J. O. Shearman, W. H. Kirby, V. R. Schneider, H. N. Flippo, 1985.

3. U. S. Department of the Interior, Geological Survey, Hydrologic Investigations Atlas HA-374, Flood of April 1968 at Many, Louisiana by A. S. Lowe, 1970.

4. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 10 Feet: Many, Louisiana, 1942-57.

5. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Town of Many, Sabine Parish, Louisiana, April 5, 1974.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 1	321.091	Approximately 0.4 mile east of main post office, 14.3 miles southwest of Robeline post office, located at Many water tank, in southeast footing 47 feet east of southeast corner of Many water works building, 26 feet north of centerline of East Main Street, 64 feet west of intersection of U. S. Route 171 and East Main Street. Mark is designated L27 1964.
RM 2	230.856	Approximately 1.2 miles south of post office at Many, 0.4 mile southeast along Illinois Central Gulf Railroad from station at Many, 0.3 mile northwest of mile post number 634, in top of northeast headwall of concrete culvert under Illinois Central Gulf Railroad, 1 foot from northeast end of headwall, 20 feet northeast of north rail on main track.
RM 3	254.93	High point on head of 1/2 inch lag bolt set horizontally into power pole at northeast corner of Louisiana and Highland Avenues.
RM 4	246.38	High point on head of railroad spike set into road side of power pole number 12 located on downstream side of Springbrook Avenue and 60 feet left of stream.
RM 5	242.06	Chiseled square on downstream left corner (looking downstream) of downstream left concrete abutment of culvert under U. S. Route 171.
RM 6	243.19	Head of railroad spike set horizontally 2 feet from left downstream end of 1-foot by 1-foot wood bridge curbing at left downstream abutment of bridge under Georgia Avenue.
RM 7	259.35	High point on head of railroad spike set in road side of power pole number 24 located 100 feet left of stream under Hawthorne Avenue.

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EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 8	267.00	High point on head of 1/2 inch lag screw set in road side of power pole number 159, 60 feet right of stream under Hawthorne Avenue.
RM 9	244.34	High point on head of railroad spike set in power pole number 19, 60 feet right of centerline of stream under U. S. Route 171 and 45 feet upstream of centerline of highway.

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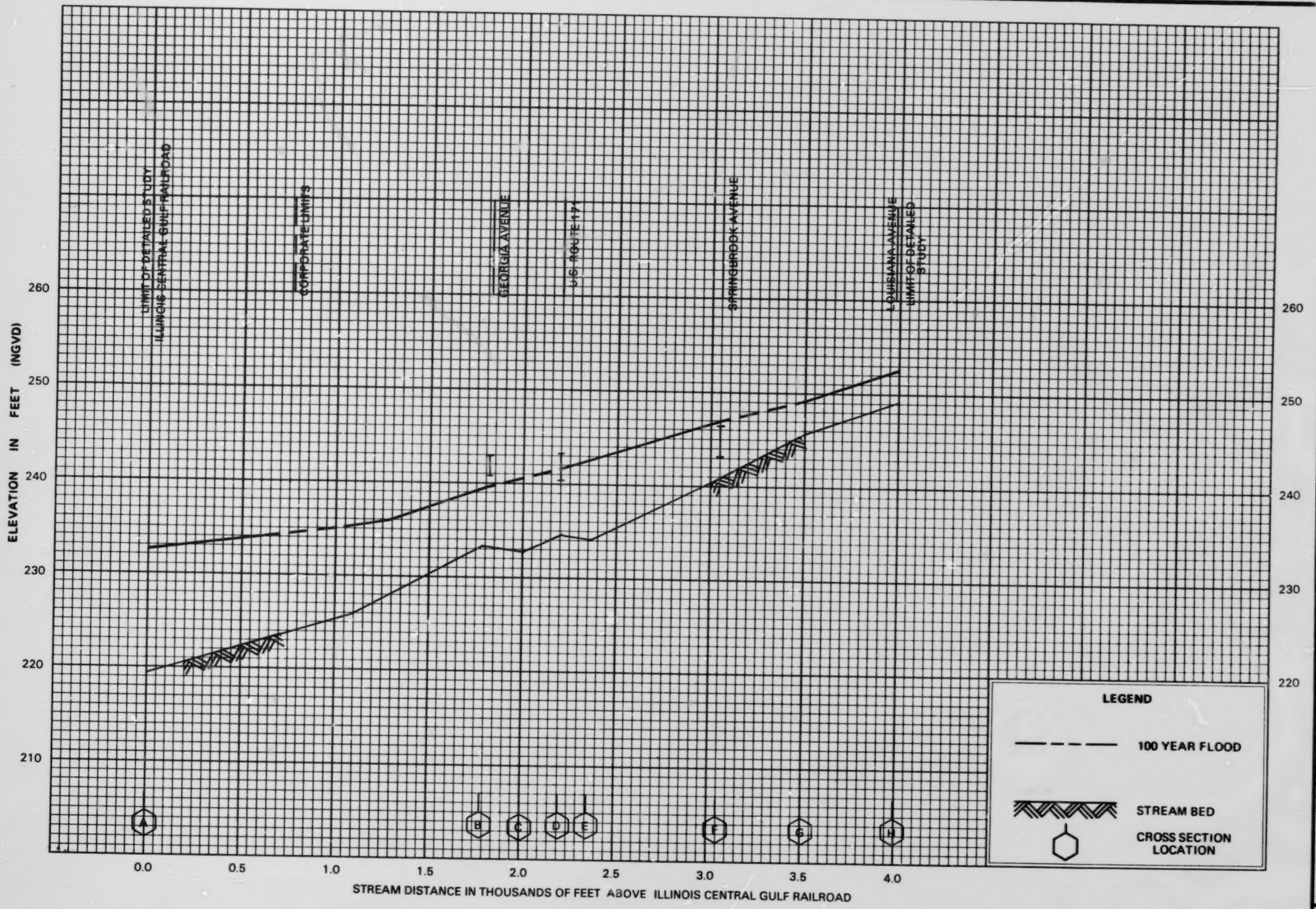

FLOOD PROFILES

SAN JOSE CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MANY, LA
(SABINE PARISH)

01P

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